



City of Bellingham
Public Works Department

WENF JAN 13 2017

January 5, 2017

United States Environmental Protection Agency, Region 7
ATTN: Biosolids Center
11201 Renner Boulevard
Lenexa, Kansas 66219
petruska.anthony@epa.gov

Dear Biosolids Center:

I've enclosed the 2016 40 CFR 503 Report for the City of Bellingham Washington's two sewage sludge incinerators at the Post Point Wastewater Treatment Plant. Included with the 40 CFR 503 Report is sludge metals and operational data for both incinerators. In this report we continue to report the daily averages derived from hourly averages for venturi differential, wet electrostatic precipitator, temperature, oxygen, and total hydrocarbon (corrected), during the time sludge was fed to the incinerators. Also included are the summary reports of quarterly quality assurance audits run on our continuous emission monitoring devices.

With this submittal we demonstrate our commitment to continue to meet all regulatory obligations as described in the federal code. Please let me know if you require additional information from our facility.

Sincerely,

A handwritten signature in black ink, appearing to read "R. Johnson", is written over a light blue horizontal line.

Robert Johnson
Superintendent of Plants
Department of Public Works Operations Division

Engineering
104 W. Magnolia Street, Suite 109
Bellingham, WA 98225
(360) 778-7900
Fax: (360) 778-7901
TTY: (360) 778-8382
pw@cob.org

Natural Resources
Physical: 2200 Nevada Street
Mailing: 2221 Pacific Street
Bellingham, WA 98229
(360) 778-7800
Fax: (360) 778-7801
pw@cob.org

Operations
2221 Pacific Street
Bellingham, WA 98229
(360) 778-7700
Fax: (360) 778-7701
pw@cob.org

CITY OF BELLINGHAM, WA 40 CFR 503 REPORT

Page 1

2016 Monitoring Results and Supporting Documentation

SUBMITTED TO: Biosolids Center, USEPA Region 7

DATE: January 5, 2017

REPORT DATE: January 01 to December 31, 2016

INTRODUCTION

This report is to fulfill the City of Bellingham's (City) requirement to monitor and report as per USEPA specifications outlined in 40 CFR Part 503 sections 503.45, 503.46, 503.47, and 503.48. The following sections present each parameter monitored along with its associated regulatory reference, and any pertinent information. To help illustrate the City of Bellingham's compliance with 40 CFR 503, there are three tables in the text and seven attachments which outline data points, calculated data points, and the data used in the derivation of calculated limitations.

Table 1 outlines the metals limitations for the City's incinerators and applicable parameters in the determination of limitations, and the values obtained for the 2016 reporting year. Actual sludge feed metals concentrations in mg/kg db are presented in *Appendix 1*. Metals concentration limitation calculations on a metal by metal basis are diagrammed in *Appendix 2.0*. *Appendix 3.0* shows the control variables utilized in determination of metal limitations. The laboratory reports from the accredited lab analyzing incinerator cake metals are included in *Appendix 7.0* (the associated QA/QC documentation can be sent upon your request).

Table 2 outlines the monthly averages for the non-metal reporting requirements for incinerators one and two. *Table 3* outlines the averages and maximums for sludge feed to both incinerators. *Appendix 4.0* diagrams the frequency of monitoring and type of reported value for all parameters. *Appendix 5.0* diagrams the 2016 averages for non-metal reporting parameters on a daily interval for those dates when sludge was fed to either incinerator. *Appendix 6.0* contains the summary report from each of the internal quality assurance audits (QAA) performed on the continuous emission monitors in 2016. An annual third party audit of the continuous emission monitors was also conducted, but the report is not included here. Supporting documentation for each QAA or the third party audit can be provided upon request.

40 CFR 503 REPORT

Page 2

INCINERATOR OPERATIONAL MONITORING PARAMETERS

Parameter: Heavy Metals Content in Sludge

Regulation: 40 CFR 503.43, 40 CFR 503.46 (a), 40 CFR 503.47 (a) & (b), 40 CFR Part 61 (c) & (e)

Composited incinerator feed samples are required to be collected for metals analysis at a minimum of every 60 days, as outlined in Table 1 of 40 CFR 503.46. Table 1 below outlines the limitations for incinerator feed metal concentrations, as well as the average levels detected for the 2016 reporting year. When no metal was detected in the sample, half of the detection limit value was utilized to derive averages. All values for sludge feed metals tested in 2016 were below the calculated limitation.

To derive metals limitations, the maximum allowable sludge feed throughput rate (3450 dry pounds an hour) was utilized. Variables for determining metals limitations are outlined in Appendix 3.0. Because the City operates two incinerators, the lowest metal specific control efficiency (CE) value obtained for both incinerators was utilized as the most appropriate variable. The lowest CE value overall was utilized for determination of the mercury limitation as the analytical results did not support the materials balance required to calculate CE for mercury.

The RSC for chromium, as obtained from Table 2 of Part 503.43 is 0.016 micrograms per cubic meter. This criterion is used in lieu of the optional method based on the fraction of hexavalent chromium to total chromium.

Table 1. Compliance evaluation for sludge feed metals limitations (2016 data).

Metal	Dispersion Factor (ug-s/g-cu-m)	Control Efficiency	Emission Rate as Tested (mg/min)	Calculated Sludge Limitation per Metal (mg/kg db)	Average Sludge Concentration as Tested (mg/kg db)	Compliance (Y/N)
Arsenic	16.5	0.99775	0.08	1425	2.4	Y
Beryllium	16.5	0.99540	0.01	58	<0.04	Y
Cadmium	16.5	0.99821	0.25	4439	1.20	Y
Chromium	16.5	0.99951	0.24	4552	10	Y
Lead	16.5	0.99954	0.97	45461	17	Y
Mercury	16.5	0.99540	56.83	18521	0.270	Y
Nickel	16.5	0.99807	0.87	144470	6.5	Y

40 CFR 503 REPORT

Page 3

Parameter: Incinerator Combustion Temperature

Regulation: 40 CFR 503.45 (d) & (e), 40 CFR 503.46 (b), 40 CFR 503.47 (a) & (f), 40 CFR 60.153(b)(3)

Combustion temperature was recorded from the highest thermocouple measurements from the hottest temperature hearth of each burning furnace. This information is recorded through the plant supervisory control computer system (SCADA) and computed in hourly averages. Maximum combustion temperatures are computed using the arithmetic mean of the temperature in the hottest zone of the furnace where the temperature is averaged and recorded from hourly averages for the hours the incinerator operates in a day (Appendix 5.0).

Temperature results are reported in terms of average daily combustion temperatures for each incinerator each month. Average monthly combustion temperatures and maximum daily temperature values, are obtained from hourly averages from the hottest burning hearth from each incinerator. Monthly averages are outlined in Table 2. The daily averages, monthly average and maximum daily temperature for each month are outlined in Appendix 5.0.

Temperature values recorded and reported cover only those incinerator operational periods when sludge feed had occurred. The operational target for combustion temperature is to not exceed a maximum hourly average of 1,890° F as calculated by specifications in 40 CFR 503.45 (e), utilizing CH2M Hill Technical Memorandum No. 2 dated August 17, 1993. As shown in Table 2 and Appendix 5.0, at no time did the average daily temperature of the hottest burning hearth exceed the temperature of 1890° F. Therefore, all averages reported for incinerator combustion in 2016 were below the target of 1890° F.

Parameter: Venturi Scrubber Differential Pressure

Regulation: 40 CFR 503.45 (f), 40 CFR 503.46 (c), 40 CFR 503.47 (a) & (g), 40 CFR 60.153 (b)(1)

The venturi scrubber differential pressure is monitored continuously by a pressure transducer/transmitter connected to both ends of the venturi throat. This information is recorded by computer in hourly averages. The results are reported in terms of daily average venturi differential pressure values for each incinerator for each month. Venturi differential pressure values recorded and reported cover only those incinerator operational periods when sludge feed had occurred. Venturi differential values obtained for each incinerator in 2016 are outlined in Table 2 and Appendix 5.0. The operational target on venturi scrubber pressure drop minimum is proposed as 15 inches water column ("wc) as described in CH2M Hill's Technical Memorandum No. 3 dated August 16, 1993.

40 CFR 503 REPORT

Page 4

All monthly averages reported for incinerator venturi scrubber differential pressures in 2016 were above the minimum interim limitation of 15 inches water column. As shown in Table 2, the yearly average venturi differential pressure for both incinerators 1 and 2 were 34.9" wc and 37.2" wc respectively.

Parameter: Wet Electrostatic Precipitator Charge Voltage

Regulation: 40 CFR 503.45 (f), 40 CFR 503.46 (c), 40 CFR 503.47 (a) & (g)

The wet electrostatic precipitator (ESP) charge voltage is monitored continuously by a voltage transducer/transmitter on the secondary coil of the ESP transformer. This information is recorded by the SCADA system in hourly averages. The results are reported in terms of average daily wet ESP charge kilovolt (kv) values for each incinerator for each month. Wet ESP charge voltage values recorded and reported cover only those incinerator operational periods when sludge feed had occurred. Wet ESP values obtained for each incinerator in 2016 are outlined in Table 2 and Appendix 5.0. The operational target on the wet ESP charge voltage minimum is proposed as 35 kilovolts as described in the 02/01/99 letter by Geoenergy submitted with the City of Bellingham's 1998 40 CFR 503 report. All monthly averages reported for incinerator wet ESP charge voltages in 2016 were above the minimum interim limitation of 35 kilovolts. As shown in Table 2, the annual average wet ESP voltage for incinerator 1 was 59.4 kV, and the annual average voltage for incinerator 2 is 59.8 kV.

Parameter: Total Hydrocarbons, Oxygen, and Moisture Content in Stack Exhaust

Regulation: 40 CFR 503.44, 40 CFR 503.45 (a), (b) & (c), 40 CFR 503.46 (b), 40 CFR 503.47 (a), (c), & (h)

The total hydrocarbon, oxygen and moisture in both stack exhaust streams are monitored by continuous emission monitoring (CEM) systems. Total hydrocarbons are corrected to 7 percent oxygen and 0 percent moisture using values from the oxygen analyzer and the moisture monitoring equipment. This information is recorded continuously by the computer and calculated into hourly averages. The results are reported in terms of average daily *corrected* total hydrocarbon values for each incinerator for each month. Total hydrocarbon values recorded and reported cover only those incinerator operational periods when sludge feed had occurred. Total hydrocarbon and oxygen values obtained for each incinerator in 2016 are outlined in Table 2 and Appendix 5.0. All values reported for incinerator stack exhaust total hydrocarbon in 2016 were below the limitation of 100 ppm total corrected hydrocarbon.

The CEM systems undergo daily drift checks as specified, and undergo an annual relative accuracy and testing audit (RATA) as performed by a third party contractor. The results of this RATA are submitted to the regional air pollution authority, the Northwest Clean Air Agency.

40 CFR 503 REPORT

Page 5

In 2016 the CEM systems passed all cylinder gas audits and drift tests (in-house audits included in Appendix 6.0). During 2016 cylinder gas audits and calibration drift tests were performed in-house on the hydrocarbon and oxygen monitors as per the specifications in the EPA guidance manual *THC Continuous Emission Monitoring Guidance for Part 503 Sewage Sludge Incinerators* (EPA 833-B-94-003). In addition, a gas audit and calibration test was completed by a third party concurrently with the RATA. All audits showed satisfactory performance of both continuous emission monitoring systems for seven day drift tests, response time, and certified gas calibration.

Data capture rates were recorded to indicate the percentage of time that the CEM systems were functioning during periods sludge was fed to either incinerator. The yearly average CEM data capture rate for incinerator 1 was 96 percent. The yearly average CEM data capture rate for incinerator 2 was 98 percent. Redundancy in CEM systems helps to ensure optimum data capture rates.

Parameter: Sewage Sludge Feed Rate

Regulation: 40 CFR 503.47 (a), & (j), 40 CFR 60.153(1)

The incinerator sludge feed rate is monitored continuously by a hydraulic piston sludge feed pump. The sludge pump flow meter measures volumetric displacement of sludge. This volumetric displacement value is multiplied by daily lab values for the percent of dry solids, and the assumed density of 8.34 to compute mass feed rate of dry solids. Flow information and mass feed rate determinations are recorded by the computer in 24-hourly averages. The results are reported in terms of daily average hourly and daily maximum hourly sludge feed rate values for each incinerator for each month, daily average and maximum totalized feed rate values and combined feed to both incinerators. Sludge feed values obtained for each incinerator in 2016 are outlined in Table 3. The maximum limitation on the totalized dry sludge fed is proposed as 3,450 pounds/hour as described in William P. McCourt's letter to Dick Hetherington dated April 4, 1994. All values reported for incinerator feed in 2016 were below the operational goal of 3,450 dry pounds an hour for both combined average and combined maximum hourly feed rates.

City of Bellingham Department of Public Works
Post Point Pollution Control Plant
Incinerator Feed Metals Results 2016

Date	Arsenic (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)
01/12/16	2.2	< 0.07	1.275	8.45
03/15/16	2.5	< 0.091	1.55	10
05/11/16	2.3	<0.066	0.936	9.85
07/19/16	2.99	<0.096	1.06	11.2
09/19/16	2.38	<0.10	1.31	9.8
11/21/16	2.13	<0.10	1.07	11.2
AVERAGE:	2.4	0.04	1.20	10
LIMITATION:	1425	57.9	4439	4552

Date	Lead (mg/kg)	Mercury (mg/kg)	Nickel (mg/kg)	Total Solids (%)
01/12/16	19.4	0.335	7.33	25.1
03/15/16	28	0.091	3.6	23.2
05/11/16	13	0.262	4.76	26.7
07/19/16	11	0.258	7.95	25.4
09/19/16	16	0.336	7.91	24.4
11/21/16	13.4	0.335	7.34	24.4
AVERAGE:	17	0.270	6.5	24.9
LIMITATION:	45461	18521	144470	

All values reported on a dry basis. Precision reported as indicated on Lab Data Reports.

< = not detected at specified detection level. One-half of specified detection level utilized to derive averages for thes

INCINERATOR FEED METALS CONCENTRATIONS

METALS LIMITATION

(mg/kg)

LEAD :

$$\text{Lead} = \frac{0.1 * \text{NAAQS} * 86,400}{\text{DF} * (1 - \text{CE}) * 37.56} = \frac{12960}{0.28508} = 45461$$

WHERE:

Lead NAAQS	=	1.5 ug/cu-m
Dispersion Factor (DF)	=	16.5 ug-s/g-cu-m
Control Efficiency (CE)	=	0.99954
Maximum Hourly Sludge Feed at 3450 dry #/hr	=	37.56 metric tons a day
Maximum Allowable Feed Throughput Rate	=	3450 dry #/hour

POST POINT 2016 AVERAGE LEAD CONCENTRATION = 17 MG/KG DB

METALS LIMITATION

(mg/kg)

ARSENIC:

$$\text{Arsenic} = \frac{\text{RSC} * 86,400}{\text{DF} * (1 - \text{CE}) * 37.56} = \frac{1987.2}{1.394415} = 1425$$

WHERE:

Arsenic RSC (503)	=	0.023 ug/cu-m
Dispersion Factor (DF)	=	16.5 ug-s/g-cu-m
Control Efficiency (CE)	=	0.99775
Maximum Hourly Sludge Feed at 3450 dry #/hr	=	37.56 metric tons a day
Maximum Allowable Feed Throughput Rate	=	3450 dry #/hour

POST POINT 2016 AVERAGE ARSENIC CONCENTRATION = 2.4 MG/KG DB

INCINERATOR FEED METALS CONCENTRATIONS

CADMIUM:

$$\text{Cadmium} = \frac{\text{RSC} * 86,400}{\text{DF} * (1 - \text{CE}) * 37.56} = \frac{4924.8}{1.109335} = \frac{\text{METALS LIMITATION}}{\text{(mg/kg)}} = 4439$$

WHERE:

Cadmium RSC (503)	=	0.057 ug/cu-m
Dispersion Factor (DF)	=	16.5 ug-s/g-cu-m
Control Efficiency (CE)	=	0.99821
Maximum Hourly Sludge Feed at 3450 dry #/hr	=	37.56 metric tons a day
Maximum Allowable Feed Throughput Rate	=	3450 dry #/hour

POST POINT 2016 AVERAGE CADMIUM CONCENTRATION = 1.2 MG/KG DB

CHROMIUM:

$$\text{Chromium} = \frac{\text{RSC} * 86,400}{\text{DF} * (1 - \text{CE}) * 37.56} = \frac{1382.4}{0.303673} = \frac{\text{METALS LIMITATION}}{\text{(mg/kg)}} = 4552$$

WHERE:

Chromium RSC (Table 10, 503)	=	0.016 ug/cu-m, Table 10 of Part 503 used in lieu of hexavalent Cr.
Dispersion Factor (DF)	=	16.5 ug-s/g-cu-m
Control Efficiency (CE)	=	0.99951
Maximum Hourly Sludge Feed at 3450 dry #/hr	=	37.56 metric tons a day
Maximum Allowable Feed Throughput Rate	=	3450 dry #/hour

POST POINT 2016 AVERAGE CHROMIUM CONCENTRATION = 10 MG/KG DB

INCINERATOR FEED METALS CONCENTRATIONS

METALS LIMITATION

(mg/kg)

NICKEL:

$$\text{Nickel} = \frac{\text{RSC} * 86,400}{\text{DF} * (1 - \text{CE}) * 37.56} = \frac{172800}{1.196098} = 144470$$

WHERE:

Nickel RSC (503)	=	2.000 ug/cu-m
Dispersion Factor (DF)	=	16.5 ug-s/g-cu-m
Control Efficiency (CE)	=	0.99807
Maximum Hourly Sludge Feed at 3450 dry #/hr	=	37.56 metric tons a day
Maximum Allowable Feed Throughput Rate	=	3450 dry #/hour

POST POINT 2016 AVERAGE NICKEL CONCENTRATION = 6.5 MG/KG DB

METALS LIMITATION

(mg/kg)

BERYLLIUM:

$$\text{Beryllium} = \frac{\text{ER}}{\text{SF} * (1 - \text{CE})} = \frac{10}{0.172776} = 57.9$$

WHERE:

Beryllium (NESHAPS)	=	10 grams/24 hr operating
Dispersion Factor (DF)	=	16.5 ug-s/g-cu-m
Control Efficiency (CE)	=	0.9954
Maximum Hourly Sludge Feed at 3450 dry #/hr	=	37.56 metric tons a day
Maximum Allowable Feed Throughput Rate	=	3450 dry #/hour

POST POINT 2016 AVERAGE BERYLLIUM CONCENTRATION = < 0.04 MG/KG DB

INCINERATOR FEED METALS CONCENTRATIONS

METALS LIMITATION

(mg/kg)

MERCURY:

$$\text{Mercury} = \frac{\text{ER}}{\text{SF} * (1 - \text{CE})} = \frac{3200}{0.172776} = 18521$$

WHERE:

Mercury ER (NESHAP)	=	3,200 g/24 hr operating
Dispersion Factor (DF)	=	16.5 ug-s/g-cu-m
Control Efficiency (CE)	=	0.99540 (Taken from Incinerator #1 Be)
Maximum Hourly Sludge Feed at 3450 dry #/hr	=	37.56 metric tons a day
Maximum Allowable Feed Throughput Rate	=	3450 dry #/hour

POST POINT 2016 AVERAGE MERCURY CONCENTRATION = 0.270 MG/KG DB

CITY OF BELLINGHAM INCINERATOR CONTROL VARIABLES

Control Efficiency Determination: Incinerator 1

Test Sludge Feed Rate (dry)

1,514 lb/hr

Pollutant	Dispersion Factor (ug-s/g-cu-m)	Control Efficiency	Emission Rate as Tested (mg/min)	Sludge Feed Both Incinerators (met-tons/day)
Arsenic	16.5	0.99879	0.03	37.56
Beryllium	16.5	0.99540	0.005	37.56
Cadmium	16.5	0.99918	0.08	37.56
Chromium	16.5	0.99951	0.16	37.56
Lead	16.5	0.99982	0.24	37.56
Mercury	16.5	-1.44351	18.9	37.56
Nickel	16.5	0.99931	0.22	37.56

Control Efficiency Determination: Incinerator 2

Test Sludge Feed Rate (dry)

1,955 lb/hr

Pollutant	Dispersion Factor (ug-s/g-cu-m)	Control Efficiency	Emission Rate as Tested (mg/min)	Sludge Feed Both Incinerators (met-tons/day)
Arsenic	16.5	0.99775	0.05	37.56
Beryllium	16.5	0.99551	0.005	37.56
Cadmium	16.5	0.99821	0.17	37.56
Chromium	16.5	0.99978	0.08	37.56
Lead	16.5	0.99954	0.73	37.56
Mercury	16.5	-1.53405	37.93	37.56
Nickel	16.5	0.99807	0.64	37.56

*Most variables taken from CH2M Hill Technical Memorandum dated Feb. 18, 1994.

Appendix 4.0 The frequency of monitoring and type of reported value for all parameters

CITY OF BELLINGHAM WASTEWATER TREATMENT PLANT INCINERATOR MONITORING PLAN SUMMARY				
PARAMETER	RECORDING FREQUENCY	REPORTED VALUE	REGULATORY PROGRAM	PROPOSED LIMITATION
HEAVY METALS IN SLUDGE	60 DAYS	EACH 60-DAY RESULT	40 CFR 503, 40 CFR 61 (NESHAPS)	SEE TABLE 1
COMBUSTION TEMPERATURE	HOURLY AVERAGE	AVERAGE OF HIGHEST HOURLY VALUES WHILE BURNING/DAY	40 CFR 503	1,890° F
VENTURI SCRUBBER DIFFERENTIAL PRESSURE	HOURLY AVERAGE	AVERAGE HOURLY VALUES/MONTH AVES.	40 CFR 503	15 INCHES H2O
WET ESP CHARGE VOLTAGE	HOURLY AVERAGE	AVERAGE HOURLY VALUES/MONTH AVES.	40 CFR 503	35 kV
TOTAL HYDROCARBONS, & OXYGEN	HOURLY AVERAGE	AVERAGE HOURLY VALUES/MONTH AVES.	40 CFR 503	100 ppm
SLUDGE FEED RATE	DAILY TOTAL + MONTHLY TOTAL	AVERAGE & MAX of 24-hour VALUES & MONTH TOTAL	40 CFR 503	3450 dry #/hr
*All reportable parameters for 40 CFR 503 are to be averaged and reported only for the periods that have sludge feed confirmed.				

40 CFR 503												
Date	Incin #1						Incin #2					
	Hearth F	After Burn F	Venturi Avg " wc	Wet ESP Avg kv	THC Avg ppm	CEM Capture %	Hearth F	After Burn F	Venturi Avg " wc	Wet ESP Avg kv	THC Avg ppm	CEM Capture %
1/1/2016	1,485	1,201	35.7	59.5	2.8	100						
1/2/2016	1,484	1,228	35.3	59.7	2.3	100						
1/3/2016	1,487	1,251	35.2	59.9	1.9	100						
1/4/2016	1,497	1,229	34.8	59.2	2.3	100						
1/5/2016	1,507	1,166	34.0	58.7	3.4	100						
1/6/2016	1,606	1,179	33.4	59.1	2.5	100						
1/7/2016	1,584	1,223	33.1	59.3	2.8	100						
1/8/2016	1,528	1,233	33.9	59.7	2.7	100						
1/9/2016	1,548	1,236	33.6	59.4	2.9	100						
1/10/2016	1,530	1,211	33.7	59.9	3.2	100						
1/11/2016	1,510	1,254	34.5	60.1	2.7	100						
1/12/2016	1,537	1,210	33.9	59.5	6.0	100						
1/13/2016	1,620	1,202	34.4	59.4	6.1	100						
1/14/2016	1,632	1,246	35.0	59.8	3.1	100						
1/15/2016	1,568	1,250	34.9	59.9	2.4	100						
1/16/2016	1,508	1,252	34.0	59.4	2.8	100						
1/17/2016	1,552	1,193	34.0	59.3	2.7	100						
1/18/2016	1,587	1,264	33.8	59.9	2.4	100						
1/19/2016	1,590	1,155	33.9	59.7	3.6	100						
1/20/2016	1,606	1,260	34.3	60.1	2.7	100						
1/21/2016	1,579	1,182	34.5	59.5	3.9	100						
1/22/2016	1,594	1,179	34.0	59.3	4.0	100						
1/23/2016	1,665	1,231	34.8	59.2	2.9	100						
1/24/2016	1,582	1,253	35.4	59.8	3.5	100						
1/25/2016	1,656	1,230	35.5	60.1	3.1	100						
1/26/2016	1,657	1,197	34.5	59.7	4.3	75						
1/27/2016	1,687	1,266	34.2	59.5	2.4	100	1,507	1,275	41.2	59.2	3.6	100
1/28/2016							1,592	1,207	41.3	59.2	9.0	100
1/29/2016							1,601	1,215	41.3	58.8	7.0	100
1/30/2016							1,672	1,238	41.5	59.1	5.5	100
1/31/2016							1,627	1,197	42.3	60.7	6.0	100
Avg	1,570	1,222	34.4	59.6	3.2	99	1,600	1,226	41.5	59.4	6.2	100.00
Min	1,484	1,155	33.1	58.7	1.9	75	1,507	1,197	41.2	58.8	3.6	100.00
Max	1,687	1,266	35.7	60.1	6.1	100	1,672	1,275	42.3	60.7	9.0	100.00

40 CFR 503												
Date	Incin #1						Incin #2					
	Hearth F	After Burn F	Venturi Avg " wc	Wet ESP Avg kv	THC Avg ppm	CEM Capture %	Hearth F	After Burn F	Venturi Avg " wc	Wet ESP Avg kv	THC Avg ppm	CEM Capture %
2/1/2016							1,566	1,195	42.3	60.5	4.9	100
2/2/2016							1,638	1,184	41.6	59.6	5.6	100
2/3/2016	1,621	1,151	34.2	58.4	4.3		1,624	988	40.6	59.2	22.8	100
2/4/2016	1,588	1,118	35.4	59.0	6.7	100						
2/5/2016	1,608	1,231	35.1	59.4	3.8							100
2/6/2016	1,662	1,222	35.6	59.5	2.8	100						
2/7/2016	1,536	1,255	36.2	60.0	2.8	100						
2/8/2016	1,539	1,178	35.6	59.6	2.7	100						
2/9/2016	1,627	1,241	35.5	60.0	2.5							100
2/10/2016	1,637	1,241	35.8	60.0	3.4	100	1,589	1,238	36.7	60.3	3.7	100
2/11/2016							1,576	1,215	36.9	59.7	4.6	100
2/12/2016							1,579	1,146	36.8	60.5	6.9	100
2/13/2016							1,597	1,209	36.4	59.4	5.2	100
2/14/2016							1,635	1,253	36.6	58.8	5.3	100
2/15/2016							1,661	1,286	37.4	60.2	3.3	100
2/16/2016							1,607	1,056	37.1	59.3	12.9	100
2/17/2016							1,583	1,074	36.0	58.6	18.4	100
2/18/2016							1,588	997	36.1	57.8	22.7	100
2/19/2016	1,538	1,223	35.3	59.5	2.0	94	1,617	968	36.1	58.8	24.3	
2/20/2016	1,540	1,233	35.5	58.6	2.3	100						
2/21/2016	1,558	1,263	35.4	58.8	2.7	100						
2/22/2016	1,574	1,173	35.8	59.3	3.1	100						
2/23/2016	1,572	1,055	35.2	58.9	6.7	100						
2/24/2016	1,516	1,104	35.1	59.1	6.0	100						
2/25/2016	1,537	1,098	34.9	58.9	6.3	100						
2/26/2016	1,502	1,210	35.3	59.1	3.3	42	1,594	1,246	36.6	60.8	3.8	58
2/27/2016							1,599	1,184	37.0	60.4	8.0	100
2/28/2016							1,567	1,185	36.8	60.4	9.7	100
2/29/2016							1,616	1,223	37.0	60.0	5.3	100
Avg	1,572	1,187	35.4	59.3	3.8	95	1,602	1,156	37.5	59.7	9.8	97.67
Min	1,502	1,055	34.2	58.4	2.0	42	1,566	968	36.0	57.8	3.3	58.00
Max	1,662	1,263	36.2	60.0	6.7	100	1,661	1,286	42.3	60.8	24.3	100.00

Date	40 CFR 503											
	Incin #1						Incin #2					
	Hearth F	After Burn F	Venturi Avg " wc	Wet ESP Avg kv	THC Avg ppm	CEM Capture %	Hearth F	After Burn F	Venturi Avg " wc	Wet ESP Avg kv	THC Avg ppm	CEM Capture %
3/1/2016							1,629	1,236	36.6	60.1	5.9	100
3/2/2016							1,596	1,275	36.4	60.0	5.2	100
3/3/2016							1,600	1,283	35.9	59.5	7.1	100
3/4/2016							1,576	1,232	35.7	59.0	7.9	100
3/5/2016							1,593	1,181	35.3	58.2	8.9	100
3/6/2016							1,567	1,230	36.3	59.7	5.2	100
3/7/2016							1,557	1,226	36.6	60.3	5.8	100
3/8/2016							1,575	1,252	36.9	60.0	6.3	100
3/9/2016							1,618	1,208	36.5	60.1	7.3	100
3/10/2016							1,592	1,153	36.6	59.6	9.9	100
3/11/2016	1,566	1,023	35.4	58.9	6.0	100	1,573	1,286	36.2	60.2	5.7	100
3/12/2016	1,608	1,196	35.2	58.3	2.7	100						
3/13/2016	1,680	1,064	35.3	59.1	15.5	100						
3/14/2016	1,652	1,071	36.5	59.5	17.2	100						
3/15/2016	1,668	1,187	36.1	59.6	8.6	100						
3/16/2016	1,645	1,276	35.9	59.6	2.6	100						
3/17/2016	1,635	1,157	37.1	59.8	6.9	100						
3/18/2016	1,615	1,245	36.6	58.7	4.3	100						
3/19/2016	1,611	1,295	36.8	59.4	3.6	100						
3/20/2016	1,584	1,270	36.1	59.0	3.0	100						
3/21/2016	1,630	1,219	36.1	59.7	2.5	100						
3/22/2016	1,590	1,290	36.2	59.2	2.2		1,671	1,185	37.1	61.6	4.3	100
3/23/2016							1,612	1,238	37.2	60.8	3.9	100
3/24/2016							1,636	1,185	37.0	60.9	4.3	100
3/25/2016							1,615	1,246	37.3	60.9	5.1	100
3/26/2016							1,584	1,227	36.9	61.0	5.9	100
3/27/2016							1,599	1,217	36.6	60.5	6.4	100
3/28/2016							1,561	1,211	37.3	61.0	4.8	100
3/29/2016							1,573	1,253	36.8	60.5	5.9	100
3/30/2016							1,568	1,232	36.6	60.0	6.6	100
3/31/2016							1,546	1,224	36.4	60.0	7.3	100
Avg	1,624	1,191	36.1	59.2	6.3	100	1,592	1,228	36.6	60.2	6.2	100.00
Min	1,566	1,023	35.2	58.3	2.2	100	1,546	1,153	35.3	58.2	3.9	100.00
Max	1,680	1,295	37.1	59.8	17.2	100	1,671	1,286	37.3	61.6	9.9	100.00

Date	40 CFR 503											
	Incin #1						Incin #2					
	Hearth F	After Burn F	Venturi Avg " wc	Wet ESP Avg kv	THC Avg ppm	CEM Capture %	Hearth F	After Burn F	Venturi Avg " wc	Wet ESP Avg kv	THC Avg ppm	CEM Capture %
4/1/2016							1,588	1,169	36.5	60.1	8.8	100
4/2/2016							1,588	1,208	35.8	59.9	9.4	100
4/3/2016							1,557	1,228	36.4	60.7	7.3	100
4/4/2016							1,592	1,191	36.1	60.6	7.4	100
4/5/2016							1,579	1,142	36.6	60.4	9.8	100
4/6/2016							1,602	1,219	36.7	60.6	8.2	100
4/7/2016							1,608	1,228	35.9	59.8	7.6	100
4/8/2016							1,563	1,186	35.6	60.3	9.2	100
4/9/2016							1,604	1,207	36.6	61.0	7.5	100
4/10/2016							1,596	1,192	36.5	60.8	8.6	100
4/11/2016							1,563	1,261	36.8	60.9	7.5	100
4/12/2016							1,549	1,259	36.6	60.9	5.9	100
4/13/2016							1,609	1,212	36.2	60.7	7.1	100
4/14/2016							1,576	1,241	35.8	60.2	6.8	100
4/15/2016							1,587	1,185	36.6	61.1	6.2	100
4/16/2016							1,575	1,165	36.4	60.5	11.6	100
4/17/2016							1,605	1,197	36.8	61.2	8.6	100
4/18/2016							1,587	1,189	36.0	60.8	7.6	100
4/19/2016							1,555	1,205	35.9	60.5	9.6	100
4/20/2016							1,581	1,183	36.0	60.8	10.1	100
4/21/2016							1,525	1,210	35.4	60.7	7.8	100
4/22/2016							1,597	1,236	35.3	60.5	7.0	100
4/23/2016							1,556	1,224	35.9	60.6	7.9	100
4/24/2016							1,528	1,235	36.0	60.5	7.6	100
4/25/2016							1,541	1,134	36.7	61.2	13.1	100
4/26/2016							1,523	1,063	36.4	60.1	20.4	100
4/27/2016							1,607	1,159	35.7	59.6	12.2	100
4/28/2016							1,635	1,128	36.3	60.5	13.9	100
4/29/2016							1,580	1,118	36.9	61.2	10.7	100
4/30/2016							1,564	1,119	36.7	60.7	14.3	100
Avg							1,577	1,190	36.2	60.6	9.3	100.00
Min							1,523	1,063	35.3	59.6	5.9	100.00
Max							1,635	1,261	36.9	61.2	20.4	100.00

40 CFR 503												
Date	Incin #1						Incin #2					
	Hearth F	After Burn F	Venturi Avg " wc	Wet ESP Avg kv	THC Avg ppm	CEM Capture %	Hearth F	After Burn F	Venturi Avg " wc	Wet ESP Avg kv	THC Avg ppm	CEM Capture %
5/1/2016							1,555	1,116	36.8	60.9	12.6	100
5/2/2016	1,583	1,141	35.4	61.7	3.1	100	1,551	1,127	36.8	60.6	17.5	100
5/3/2016	1,591	1,138	35.4	59.5	6.1	100						
5/4/2016	1,561	1,185	35.3	59.3	2.6	100						
5/5/2016	1,625	1,224	35.2	59.7	2.6	100						
5/6/2016	1,588	1,215	35.5	60.1	2.4	100						
5/7/2016	1,527	1,199	35.3	59.8	3.3	100						
5/8/2016	1,555	1,277	35.7	60.2	1.9	100						
5/9/2016	1,581	1,191	35.8	60.2	2.7	100						
5/10/2016	1,547	1,136	35.8	60.4	5.2	100						
5/11/2016	1,584	1,216	35.6	60.5	3.6	100						
5/12/2016	1,538	1,205	35.7	59.8	3.3	100						
5/13/2016	1,620	1,226	35.3	60.0	2.9	100						
5/14/2016	1,628	1,196	34.9	59.4	3.3	100						
5/15/2016	1,642	1,251	35.3	59.5	2.5	100						
5/16/2016	1,600	1,237	35.7	60.1	2.8	100						
5/17/2016	1,631	1,287	35.8	60.1	2.5	100						
5/18/2016	1,621	1,127	35.0	59.9	7.3	100						
5/19/2016	1,675	1,182	34.9	58.9	4.0	100						
5/20/2016	1,645	1,149	35.4	59.4	4.4	100						
5/21/2016	1,662	1,147	35.5	59.7	4.0	100						
5/22/2016	1,656	1,184	35.6	59.8	3.2	100						
5/23/2016	1,651	1,174	35.8	60.0	2.6	100						
5/24/2016	1,630	1,168	35.7	59.8	3.1	100						
5/25/2016	1,618	1,172	35.9	59.8	4.7	100						
5/26/2016	1,631	1,177	36.0	59.6	4.7	100						
5/27/2016	1,643	1,192	36.0	59.9	4.4	100						
5/28/2016	1,581	1,156	35.7	59.5	3.7	100						
5/29/2016	1,556	1,199	35.9	59.9	3.5	100						
5/30/2016	1,623	1,186	36.0	60.2	3.3	100						
5/31/2016	1,591	1,129	35.6	60.2	4.1	100						
Avg	1,606	1,189	35.6	59.9	3.6	100	1,553	1,122	36.8	60.8	15.1	100.00
Min	1,527	1,127	34.9	58.9	1.9	100	1,551	1,116	36.8	60.6	12.6	100.00
Max	1,675	1,287	36.0	61.7	7.3	100	1,555	1,127	36.8	60.9	17.5	100.00

Date	40 CFR 503											
	Incin #1						Incin #2					
	Hearth F	After Burn F	Venturi Avg " wc	Wet ESP Avg kv	THC Avg ppm	CEM Capture %	Hearth F	After Burn F	Venturi Avg " wc	Wet ESP Avg kv	THC Avg ppm	CEM Capture %
6/1/2016	1,694	1,148	35.4	59.7	5.8	100						
6/2/2016	1,627	1,062	35.5	59.9	4.5	100						
6/3/2016	1,657	1,210	35.8	60.0	3.2	100						
6/4/2016	1,597	1,250	35.6	60.2	3.3	100						
6/5/2016	1,582	1,164	35.3	60.3	3.6	100						
6/6/2016	1,613	1,207	35.3	60.4	6.2	100						
6/7/2016	1,633	1,199	34.6	59.2	4.8	100						
6/8/2016	1,681	1,214	34.4	59.1	4.2	100						
6/9/2016	1,657	1,203	35.0	59.1	3.1	100						
6/10/2016	1,631	1,209	35.4	59.4	4.1	100						
6/11/2016	1,595	1,224	35.8	59.7	3.3	100						
6/12/2016	1,518	1,215	35.8	59.7	3.6	100						
6/13/2016	1,521	1,177	35.2	59.4	4.3	100						
6/14/2016	1,579	1,199	35.1	58.8	3.6	100						
6/15/2016	1,613	1,252	35.3	59.3	3.9	100						
6/16/2016	1,548	1,185	34.7	59.3	4.9	100						
6/17/2016	1,552	1,233	35.0	59.5	3.9	100						
6/18/2016	1,586	1,216	35.2	59.3	4.2	100						
6/19/2016	1,568	1,222	35.3	59.4	3.8	100						
6/20/2016	1,615	1,189	35.2	59.4	4.9	100						
6/21/2016	1,588	1,175	35.4	59.9	4.5	100						
6/22/2016	1,597	1,140	35.3	59.5	3.9	100						
6/23/2016	1,667	1,231	35.1	58.8	2.3	100						
6/24/2016	1,540	1,188	35.9	59.6	3.2	100						
6/25/2016	1,607	1,155	35.9	60.1	2.9	100						
6/26/2016	1,608	1,127	35.9	60.0	3.8	100						
6/27/2016	1,610	1,159	35.8	60.5	2.4	100						
6/28/2016	1,629	1,183	35.8	60.3	2.3	100						
6/29/2016	1,560	1,149	35.5	59.6	6.0	100						
6/30/2016	1,565	1,117	35.5	59.5	3.8	100						
Avg	1,601	1,187	35.4	59.6	3.9	100						
Min	1,518	1,062	34.4	58.8	2.3	100						
Max	1,694	1,252	35.9	60.5	6.2	100						

40 CFR 503												
	Incin #1						Incin #2					
	Hearth	After Burn	Venturi Avg	Wet ESP Avg	THC Avg	CEM Capture	Hearth	After Burn	Venturi Avg	Wet ESP Avg	THC Avg	CEM Capture
Date	F	F	" wc	kv	ppm	%	F	F	" wc	kv	ppm	%
7/1/2016	1,506	1,171	35.3	60.0	3.8	100						
7/2/2016	1,536	1,116	34.7	59.5	3.4	100						
7/3/2016	1,526	1,222	35.2	60.1	2.4	100						
7/4/2016	1,539	1,239	35.1	60.0	2.2	100						
7/5/2016	1,524	1,223	35.2	59.8	2.3	100						
7/6/2016	1,537	1,143	34.7	59.9	5.3	100						
7/7/2016	1,500	1,220	34.4	59.2	3.9	97						
7/8/2016	1,559	1,205	34.3	59.6	4.2	100						
7/9/2016	1,573	1,195	34.6	59.6	4.0	100						
7/10/2016	1,545	1,216	34.8	59.7	2.9	100						
7/11/2016	1,544	1,218	34.9	59.8	4.2	100						
7/12/2016	1,612	1,175	34.8	59.6	3.8	100						
7/13/2016	1,649	1,213	34.9	59.9	2.9	100						
7/14/2016	1,569	1,142	35.0	60.1	4.9	100						
7/15/2016	1,577	1,108	34.7	60.0	6.5	100						
7/16/2016	1,525	1,212	35.3	60.1	2.1	100						
7/17/2016	1,536	1,082	35.1	59.9	3.3	100						
7/18/2016	1,530	1,157	34.7	59.6	2.9	100						
7/19/2016	1,509	1,120	34.5	60.0	3.6	100						
7/20/2016	1,469	1,122	33.7	59.8	3.9	100						
7/21/2016	1,456	1,166	32.9	59.2	3.9	100						
7/22/2016	1,558	1,181	33.9	59.8	5.0	100						
7/23/2016	1,538	1,165	34.7	60.0	3.1	100						
7/24/2016	1,530	1,164	34.8	60.0	2.7	100						
7/25/2016	1,527	1,134	34.6	60.2	3.7	100						
7/26/2016	1,554	1,120	34.5	59.7	4.3	100						
7/27/2016	1,592	1,172	34.6	59.7	3.5	100						
7/28/2016	1,616	1,120	33.3	60.9	2.2	100						
7/29/2016	1,582	1,178	31.7	60.2	3.4	100						
7/30/2016	1,585	1,192	31.4	60.0	3.0	100						
7/31/2016	1,573	1,144	32.2	59.9	2.5	100						
Avg	1,548	1,169	34.3	59.9	3.5	100						
Min	1,456	1,082	31.4	59.2	2.1	97						
Max	1,649	1,239	35.3	60.9	6.5	100						

Date	40 CFR 503											
	Incin #1						Incin #2					
	Hearth F	After Burn F	Venturi Avg " wc	Wet ESP Avg kv	THC Avg ppm	CEM Capture %	Hearth F	After Burn F	Venturi Avg " wc	Wet ESP Avg kv	THC Avg ppm	CEM Capture %
8/1/2016	1,574	1,179	32.5	59.7	3.3	100						
8/2/2016	1,582	1,200	34.3	58.9	3.9	100						
8/3/2016	1,647	1,155	35.1	59.5	5.1	100						
8/4/2016	1,632	1,165	34.5	59.7	3.8	100						
8/5/2016	1,591	1,179	34.2	59.2	3.3	100						
8/6/2016	1,539	1,182	33.3	58.5	4.1	100						
8/7/2016	1,539	1,202	33.7	58.7	3.1	100						
8/8/2016	1,600	1,229	34.3	59.1	2.6	100						
8/9/2016	1,633	1,129	34.5	59.3	4.2	100						
8/10/2016	1,619	1,172	34.2	59.1	5.1	100						
8/11/2016	1,613	1,227	34.4	59.5	5.3	100						
8/12/2016	1,558	1,112	34.4	59.7	5.5	100						
8/13/2016	1,530	1,158	34.4	60.1	4.8	100						
8/14/2016	1,510	1,160	34.4	60.0	3.9	100						
8/15/2016	1,575	1,162	34.6	59.7	4.5	100						
8/16/2016	1,593	1,157	34.3	59.2	3.9	100						
8/17/2016	1,589	1,136	33.9	58.7	5.1	50						
8/18/2016	1,548	1,143	34.0	59.6	4.3	63						
8/19/2016	1,568	1,211	34.2	59.8	3.2	100						
8/20/2016	1,600	1,134	33.6	59.5	3.4	100						
8/21/2016	1,592	1,117	33.6	59.2	3.8	100						
8/22/2016	1,586	1,147	34.5	59.4	2.4	100						
8/23/2016	1,614	1,144	34.1	58.1	3.1	100						
8/24/2016	1,596	1,135	34.5	59.1	4.1	100						
8/25/2016	1,584	1,131	34.0	59.2	4.2	100						
8/26/2016	1,626	1,150	33.4	59.0	3.8	100						
8/27/2016	1,639	1,126	33.8	59.4	4.0	100						
8/28/2016	1,662	1,164	34.1	59.2	2.8	100						
8/29/2016	1,582	1,108	33.9	58.9	6.0	100						
8/30/2016	1,710	1,109	33.8	59.4	3.8	100						
8/31/2016	1,594	1,148	33.8	58.9	2.6	100						
Avg	1,594	1,157	34.1	59.3	4.0	97						
Min	1,510	1,108	32.5	58.1	2.4	50						
Max	1,710	1,229	35.1	60.1	6.0	100						

40 CFR 503												
Date	Incin #1						Incin #2					
	Hearth F	After Burn F	Venturi Avg " wc	Wet ESP Avg kv	THC Avg ppm	CEM Capture %	Hearth F	After Burn F	Venturi Avg " wc	Wet ESP Avg kv	THC Avg ppm	CEM Capture %
9/1/2016	1,601	1,144	33.4	58.5	4.4	100						
9/2/2016	1,587	1,087	33.8	59.0	6.7	100						
9/3/2016	1,511	1,167	34.5	59.4	3.0	100						
9/4/2016	1,548	1,154	34.2	59.1	3.6	100						
9/5/2016	1,539	1,134	34.6	59.1	3.5	100						
9/6/2016	1,551	1,134	34.7	59.4	3.2	100						
9/7/2016	1,581	1,128	34.6	59.1	2.6	100						
9/8/2016	1,624	1,173	35.0	59.4	2.3	100						
9/9/2016	1,611	1,118	34.6	59.0	3.1	100						
9/10/2016	1,621	1,142	34.5	59.4	3.5	100						
9/11/2016	1,537	1,176	34.6	59.4	2.3	100						
9/12/2016	1,556	1,126	34.8	59.4	2.7	100						
9/13/2016	1,587	1,196	34.5	58.9	2.4	100						
9/14/2016	1,636	1,150	34.4	59.1	3.5	100						
9/15/2016	1,624	1,128	34.3	58.8	5.4	100						
9/16/2016	1,652	1,116	33.9	59.0	4.8	100						
9/17/2016	1,629	1,078	33.9	58.8	4.9	100						
9/18/2016	1,601	1,073	34.4	59.2	4.9	100						
9/19/2016	1,623	1,100	34.2	58.8	5.4	100						
9/20/2016	1,603	1,153	34.6	58.8	6.1	100						
9/21/2016	1,658	1,184	33.9	58.6	4.1	100						
9/22/2016	1,631	1,192	34.2	59.3	1.9	78						
9/23/2016	1,574	1,164	34.7	59.2	2.1	71						
9/24/2016	1,529	1,187	35.1	59.6	3.1	100						
9/25/2016	1,533	1,167	35.0	60.0	3.3	100						
9/26/2016	1,525	1,156	34.7	59.6	3.9	100						
9/27/2016	1,609	1,170	34.8	59.8	3.7	100						
9/28/2016	1,558	1,171	34.7	59.3	3.8	100						
9/29/2016	1,563	1,136	34.6	59.1	4.4	100						
9/30/2016	1,591	1,147	34.5	59.1	5.4	100						
Avg	1,586	1,145	34.5	59.2	3.8	98						
Min	1,511	1,073	33.4	58.5	1.9	71						
Max	1,658	1,196	35.1	60.0	6.7	100						

40 CFR 503												
Date	Incin #1						Incin #2					
	Hearth F	After Burn F	Venturi Avg " wc	Wet ESP Avg kv	THC Avg ppm	CEM Capture %	Hearth F	After Burn F	Venturi Avg " wc	Wet ESP Avg kv	THC Avg ppm	CEM Capture %
10/1/2016	1,590	1,160	34.8	59.4	6.3	100						
10/2/2016	1,562	1,127	33.8	59.3	6.2	100						
10/3/2016	1,584	1,121	34.3	58.7	4.7	100						
10/4/2016	1,660	1,155	34.3	59.0	3.3	100						
10/5/2016	1,604	1,138	34.3	59.0	4.3	100						
10/6/2016	1,621	1,189	34.0	58.7	4.9	100						
10/7/2016	1,626	1,194	33.5	59.3	2.7	100						
10/8/2016	1,658	1,182	33.9	58.2	10.5	100						
10/9/2016	1,618	1,258	33.0	58.7	2.1	100	1,637	1,185	36.4	60.3	7.8	100
10/10/2016							1,566	1,133	36.7	61.1	13.3	100
10/11/2016						0	1,597	1,034	37.1	61.4	8.8	100
10/12/2016						100	1,585	1,103	36.6	60.5	10.4	
10/13/2016						0	1,584	1,165	35.4	58.3	9.4	100
10/14/2016							1,594	989	33.2	57.8	22.4	100
10/15/2016							1,587	1,223	32.9	57.9	10.1	100
10/16/2016							1,565	1,164	34.5	58.4	8.1	100
10/17/2016							1,580	1,188	34.6	58.5	6.4	100
10/18/2016							1,581	1,242	35.5	59.6	8.0	100
10/19/2016							1,597	1,025	35.2	58.9	20.2	100
10/20/2016							1,613	1,025	35.3	58.8	20.5	100
10/21/2016							1,605	1,062	33.6	58.7	25.7	100
10/22/2016							1,628	1,039	35.7	59.1	18.5	100
10/23/2016							1,609	1,146	35.0	58.9	15.3	100
10/24/2016							1,548	1,219	36.2	59.9	8.7	100
10/25/2016							1,583	1,046	36.1	59.8	15.4	100
10/26/2016							1,551	1,207	35.4	58.4	13.4	100
10/27/2016							1,517	1,143	35.1	58.7	9.8	100
10/28/2016							1,536	1,077	34.6	59.0	17.2	100
10/29/2016							1,556	1,196	35.6	59.6	7.6	100
10/30/2016							1,553	1,171	35.3	58.6	11.0	100
10/31/2016							1,544	1,006	35.2	59.0	16.7	100
Avg	1,614	1,169	34.0	58.9	5.0	83	1,579	1,121	35.3	59.2	13.2	100.00
Min	1,562	1,121	33.0	58.2	2.1	0	1,517	989	32.9	57.8	6.4	100.00
Max	1,660	1,258	34.8	59.4	10.5	100	1,637	1,242	37.1	61.4	25.7	100.00

Date	40 CFR 503											
	Incin #1						Incin #2					
	Hearth F	After Burn F	Venturi Avg " wc	Wet ESP Avg kv	THC Avg ppm	CEM Capture %	Hearth F	After Burn F	Venturi Avg " wc	Wet ESP Avg kv	THC Avg ppm	CEM Capture %
11/1/2016							1,584	1,080	34.9	58.3	15.2	100
11/2/2016							1,555	1,097	35.3	58.5	24.8	100
11/3/2016							1,615	1,134	33.8	59.1	22.1	100
11/4/2016							1,589	1,206	34.3	59.3	11.8	100
11/5/2016							1,588	1,067	35.1	58.5	20.1	100
11/6/2016							1,665	991	36.0	59.7	29.9	100
11/7/2016							1,606	1,025	35.4	58.4	21.6	100
11/8/2016							1,580	1,100	35.3	58.7	17.2	100
11/9/2016							1,624	1,009	35.2	59.2	17.6	100
11/10/2016							1,633	1,043	35.7	58.6	13.9	100
11/11/2016							1,635	995	36.1	59.4	15.9	100
11/12/2016							1,630	1,007	36.2	59.2	19.7	100
11/13/2016							1,596	1,106	36.3	59.7	17.1	100
11/14/2016							1,571	1,139	36.1	59.5	13.7	100
11/15/2016	1,578	1,077	34.6	59.3	9.3	100	1,535	1,171	36.1	59.3	15.0	100
11/16/2016	1,583	1,084	34.2	58.7	7.8	100						
11/17/2016	1,588	1,176	34.3	59.0	3.8	100						
11/18/2016	1,585	1,156	34.3	59.4	4.8	100						
11/19/2016	1,607	1,111	33.6	59.2	7.1	100						
11/20/2016	1,562	1,166	33.8	59.1	4.7	100						
11/21/2016	1,543	1,154	35.1	60.1	5.4	100						
11/22/2016	1,577	1,149	34.6	59.0	6.0	100						
11/23/2016	1,589	1,115	34.2	59.3	7.7	100						
11/24/2016	1,549	1,106	34.6	59.6	6.0	100						
11/25/2016	1,598	1,050	33.5	58.9	11.7	100						
11/26/2016	1,598	1,095	32.9	58.7	9.1	66						
11/27/2016	1,574	1,102	34.6	59.3	5.1	100						
11/28/2016	1,611	1,127	35.2	59.1	5.4	100						
11/29/2016	1,551	1,127	35.4	59.6	5.7	100						
11/30/2016	1,639	1,152	34.6	58.3	5.0	100						
Avg	1,583	1,122	34.3	59.2	6.5	98	1,600	1,078	35.5	59.0	18.4	100.00
Min	1,543	1,050	32.9	58.3	3.8	66	1,535	991	33.8	58.3	11.8	100.00
Max	1,639	1,176	35.4	60.1	11.7	100	1,665	1,206	36.3	59.7	29.9	100.00

40 CFR 503												
Date	Incin #1						Incin #2					
	Hearth F	After Burn F	Venturi Avg " wc	Wet ESP Avg kv	THC Avg ppm	CEM Capture %	Hearth F	After Burn F	Venturi Avg " wc	Wet ESP Avg kv	THC Avg ppm	CEM Capture %
12/1/2016	1,605	1,204	33.7	60.1	3.9	100						
12/2/2016	1,611	1,157	35.3	60.0	3.2	100						
12/3/2016	1,596	1,146	35.6	59.2	4.5	100						
12/4/2016	1,591	1,139	35.0	59.4	5.4	100						
12/5/2016	1,604	1,130	35.0	59.5	5.0	100						
12/6/2016	1,555	1,146	34.8	59.6	6.5	100						
12/7/2016	1,592	1,139	35.3	59.8	5.7	100						
12/8/2016	1,607	1,154	35.2	59.3	4.6	100						
12/9/2016	1,615	1,182	35.1	59.7	4.6	100						
12/10/2016	1,568	1,160	35.2	59.4	5.9	100						
12/11/2016	1,592	1,162	35.1	60.0	4.9	100						
12/12/2016	1,615	1,117	35.1	58.9	6.8	100						
12/13/2016	1,586	1,132	35.1	58.9	6.5	100						
12/14/2016	1,587	1,174	34.6	58.9	2.7	100						
12/15/2016	1,597	1,127	34.7	59.3	3.1	100						
12/16/2016	1,614	1,206	34.9	60.0	2.6	100						
12/17/2016	1,568	1,125	36.4	60.3	2.8	100						
12/18/2016	1,556	1,151	35.9	60.7	2.9	100						
12/19/2016	1,583	1,187	36.1	60.5	2.7	100						
12/20/2016	1,563	1,127	35.6	60.0	4.0	100						
12/21/2016	1,617	1,124	35.4	60.3	2.8	100						
12/22/2016	1,578	1,149	34.7	60.0	2.7	100						
12/23/2016	1,583	1,140	35.5	59.9	2.5	100						
12/24/2016	1,562	1,083	35.7	60.0	2.6	100						
12/25/2016	1,572	1,147	35.6	60.5	2.5	100						
12/26/2016	1,631	1,064	35.1	59.7	4.3	100						
12/27/2016	1,637	1,121	35.1	60.5	3.5	100						
12/28/2016	1,608	1,073	36.2	60.4	4.8	100						
12/29/2016	1,600	1,152	35.1	50.7	4.0	100	1,581	1,186	37.8	60.1	10.9	100
12/30/2016							1,611	1,255	37.0	59.3	8.4	100
12/31/2016							1,545	1,357	37.5	59.0	6.6	100
Avg	1,593	1,142	35.2	59.5	4.1	100	1,579	1,266	37.4	59.5	8.6	100.00
Min	1,555	1,064	33.7	50.7	2.5	100	1,545	1,186	37.0	59.0	6.6	100.00
Max	1,637	1,206	36.4	60.7	6.8	100	1,611	1,357	37.8	60.1	10.9	100.00

Date: 01/29/2016

2015 Audit of Fourth Quarter Accuracy Summary Report

City of Bellingham personnel conducted a Quarterly Accuracy Audit (QAA) on the Total Hydrocarbon (THC) and Oxygen (O₂) continuous emission monitoring systems (CEMS) installed as part of incinerators # 1 and #2 at the Post Point Wastewater Treatment Plant. Testing was conducted to meet the requirements of 40 CFR part 503 subpart E. Testing procedures were based on procedures set down in the EPA document "THC Continuous Emission Monitoring Guidance for Part 503 Sewage Sludge Incinerators" (EPA 833-B-94-003). The QAA consisted of a 7-day, 24 hour calibration drift test (CDT), performed on 01/2/2016 - 01/8/2016 for both CEMS1 and CEMS2, and a response time test (RTT) and calibration error test (CET), performed on 01/28/2016 for both CEMS1 and CEMS2.

Calibration Drift Tests

The CEMS automatically performs a CDT daily, using zero gas and span gas (70 to 90% of span). Calibration drift data for THC and O₂ were collected every 24 hours for the period from 01/2/2016 - 01/8/2016 for both CEMS 1 and CEMS2. The maximum 24-hour drift observed during the 7-day drift test is detailed below. Complete 7-day daily drift results are also provided with this report.

Calibration 7-Day Drift Test Result Summary

	Zero Drift (max day)	Span Drift (max day)	Criteria*
CEMS 1 O ₂ Dry	0.06 %	0.32 %	≤ 0.5%
CEMS 1 O ₂ Wet	0.07 %	0.40 %	≤ 0.5%
CEMS 1 THC	-0.01 ppm	-3.54 ppm	≤ 6 ppm
CEMS 2 O ₂ Dry	0.10 %	0.07 %	≤ 0.5%
CEMS 2 O ₂ Wet	0.08 %	-0.20 %	≤ 0.5%
CEMS 2 THC	-0.11 ppm	-2.71 ppm	≤ 6 ppm

* EPA guidance for 40 CFR 503 sets the limits for calibration drift as no greater than 6 ppm for THC and 0.5% for O₂ for a 24 hour period.

Response Time Tests

Response time tests were performed on 01/28/2016 on both CEMS1 and CEMS2. All calibration gases are introduced as close to the CEMS probe outlet as possible. The analyzer reading was taken and 90% or 110% of the reading was calculated. Calibration gases were then introduced into the system and allowed to stabilize. The calibration gas flow was then cut off and the time required to reach 90% or 110% of the previous analyzer reading was recorded. The system was allowed to stabilize between each individual test and the test was repeated 2 additional times. The test was conducted using zero and high range gas for both O₂ and THC. The mean upscale and downscale response time was determined for each instrument and the maximum value of the two is presented in the table below.

Response Time Test Results

	O ₂ (dry)	O ₂ (wet)	THC CEMS	Criteria*
CEMS 1 Response Time	27 seconds	23 seconds	32 seconds	< 200 seconds
CEMS 2 Response Time	22 seconds	18 seconds	22 seconds	< 200 seconds

* EPA guidance for 40 CFR 503 states that response times should be 200 seconds or less for the O₂ and THC CEMS.

Calibration Error Test

Calibration error tests were conducted 01/28/2016. The O₂ and THC CEMS were each challenged with 3 different concentrations of calibration gas. The O₂ analyzers were challenged with a low range (2.01% O₂) gas, a mid-range (7.95%) gas, and high range (19.82%) gas. The THC analyzers were challenged with a low range (10.3 ppm) gas, a mid-range (49.9 ppm) gas and high range (80.0 ppm) gas. The gases were injected at the outlet of each probe prior to any sample conditioning. Data were recorded after the value stabilized. Three non-sequential injections of each calibration gas were performed during the test. The CEMS readings were recorded after a stable response was achieved and the difference between the CEMS value and calibration gas certified value were calculated. Mean calibration error from both CEMS1 and CEMS2 is presented in the following table.

Mean Calibration Error

	THC	Criteria*	O ₂ Dry	O ₂ Wet	Criteria*
CEMS 1					
Low-Range	-0.40 ppm	≤ 5 ppm	0.02 %	0.05 %	≤ 0.5%
Mid-Range	-0.30 ppm	≤ 10 ppm	0.09 %	0.11 %	≤ 0.5%
High-Range	-0.10 ppm	≤ 10 ppm	0.18 %	0.35 %	≤ 0.5%
CEMS 2					
Low-Range	-0.17 ppm	≤ 5 ppm	0.00 %	0.00 %	≤ 0.5%
Mid-Range	0.83 ppm	≤ 10 ppm	-0.03 %	-0.01 %	≤ 0.5%
High-Range	1.37 ppm	≤ 10 ppm	-0.02 %	-0.02 %	≤ 0.5%

Where: Calibration Error = CEMS instrument response – Certified calibration gas value

* EPA guidance for 40 CFR 503 states that the mean difference between the CEMS and reference values at low, mid and high range should be no greater than 5 ppm for low range THC, 10 ppm for mid and high range THC, and 0.5% for all ranges of O₂.

The Fourth Quarter accuracy audit results indicate that CEMS1 and CEMS2 THC, O₂ dry, and O₂ wet parameters at the City of Bellingham Post Point Wastewater Treatment Plant are within regulatory requirements for the period 10/23/2015 - 01/28/2016.

Date: 11/3/2016

2016 Audit of Third Quarter Accuracy Audit Summary Report

City of Bellingham personnel conducted a Quarterly Accuracy Audit (QAA) on the Total Hydrocarbon (THC) and Oxygen (O₂) continuous emission monitoring systems (CEMS) installed as part of incinerators # 1 and #2 at the Post Point Wastewater Treatment Plant. Testing was conducted to meet the requirements of 40 CFR part 503 subpart E. Testing procedures were based on procedures set down in the EPA document "THC Continuous Emission Monitoring Guidance for Part 503 Sewage Sludge Incinerators" (EPA 833-B-94-003). The QAA consisted of a 7-day, 24 hour calibration drift test (CDT), performed on 10/28/2016 - 11/3/2016 for both CEMS1 and CEMS2, and a response time test (RTT) and calibration error test (CET), performed on 10/27/2016 for both CEMS1 and CEMS2.

Calibration Drift Tests

The CEMS automatically performs a CDT daily, using zero gas and span gas (70 to 90% of span). Calibration drift data for THC and O₂ were collected every 24 hours for the period from 10/28/2016 - 11/3/2016 for both CEMS 1 and CEMS2. The maximum 24-hour drift observed during the 7-day drift test is detailed below. Complete 7-day daily drift results are also provided with this report.

Calibration 7-Day Drift Test Result Summary

	Zero Drift (max day)	Span Drift (max day)	Criteria*
CEMS 1 O ₂ Dry	0.05 %	-0.15 %	≤ 0.5%
CEMS 1 O ₂ Wet	0.07 %	0.27 %	≤ 0.5%
CEMS 1 THC	-0.01 ppm	-3.40 ppm	≤ 6 ppm
CEMS 2 O ₂ Dry	0.19 %	-0.07 %	≤ 0.5%
CEMS 2 O ₂ Wet	0.08 %	-0.19 %	≤ 0.5%
CEMS 2 THC	0.13 ppm	1.09 ppm	≤ 6 ppm

* EPA guidance for 40 CFR 503 sets the limits for calibration drift as no greater than 6 ppm for THC and 0.5% for O₂ for a 24 hour period.

Response Time Tests

Response time tests were performed on 10/27/2016 on both CEMS1 and CEMS2. All calibration gases are introduced as close to the CEMS probe outlet as possible. The analyzer reading was taken and 90% or 110% of the reading was calculated. Calibration gases were then introduced into the system and allowed to stabilize. The calibration gas flow was then cut off and the time required to reach 90% or 110% of the previous analyzer reading was recorded. The system was allowed to stabilize between each individual test and the test was repeated 2 additional times. The test was conducted using zero and high range gas for both O₂ and THC. The mean upscale and downscale response time was determined for each instrument and the maximum value of the two is presented in the table below.

Response Time Test Results

	O ₂ (dry)	O ₂ (wet)	THC CEMS	Criteria*
CEMS 1 Response Time	27 seconds	22 seconds	31 seconds	< 200 seconds
CEMS 2 Response Time	24 seconds	21 seconds	22 seconds	< 200 seconds

* EPA guidance for 40 CFR 503 states that response times should be 200 seconds or less for the O₂ and THC CEMS.

Calibration Error Test

Calibration error tests were conducted 10/27/2016. The O₂ and THC CEMS were each challenged with 3 different concentrations of calibration gas. The O₂ analyzers were challenged with a low range (2.01% O₂) gas, a mid-range (7.95%) gas, and high range (20.00%) gas. The THC analyzers were challenged with a low range (10.3 ppm) gas, a mid-range (49.9 ppm) gas and high range (81.3 ppm) gas. The gases were injected at the outlet of each probe prior to any sample conditioning. Data were recorded after the value stabilized. Three non-sequential injections of each calibration gas were performed during the test. The CEMS readings were recorded after a stable response was achieved and the difference between the CEMS value and calibration gas certified value were calculated. Mean calibration error from both CEMS1 and CEMS2 is presented in the following table.

Mean Calibration Error

	THC	Criteria*	O ₂ Dry	O ₂ Wet	Criteria*
CEMS 1					
Low-Range	-0.27 ppm	≤ 5 ppm	-0.02 %	-0.02 %	≤ 0.5%
Mid-Range	-0.63 ppm	≤ 10 ppm	-0.05 %	-0.06 %	≤ 0.5%
High-Range	-0.47 ppm	≤ 10 ppm	-0.13 %	-0.20 %	≤ 0.5%
CEMS 2					
Low-Range	0.07 ppm	≤ 5 ppm	-0.01 %	-0.02 %	≤ 0.5%
Mid-Range	-0.03 ppm	≤ 10 ppm	-0.12 %	-0.08 %	≤ 0.5%
High-Range	0.10 ppm	≤ 10 ppm	-0.13 %	-0.23 %	≤ 0.5%

Where: Calibration Error = CEMS instrument response – Certified calibration gas value

* EPA guidance for 40 CFR 503 states that the mean difference between the CEMS and reference values at low, mid and high range should be no greater than 5 ppm for low range THC, 10 ppm for mid and high range THC, and 0.5% for all ranges of O₂.

The 2016 Third Quarter accuracy audit results indicate that CEMS1 and CEMS2 THC, O₂ dry, and O₂ wet parameters at the City of Bellingham Post Point Wastewater Treatment Plant are within regulatory requirements for the period 07/22/16 - 10/27/16.

ANALYSIS REPORT

City Of Bellingham
200 McKenzie Ave
Bellingham, WA 98225
Attention: Peg Wendling

Date Received: 1/14/2016
Date Reported: 1/23/2016

AM TEST Identification Number 16A000404
Client Identification Incinerator Cake
Sampling Date 1/12/16, 23:59

PARAMETER	CAS #	RESULT	PQL	MDL
Conventionals				
Total Solids (%)		25.1	0.1	
Total Metals				
Arsenic (ug/g)	7740-38-2	2.2	1.5	0.5
Beryllium (ug/g)	7440-41-7	<0.07	0.07	0.025
Cadmium (ug/g)	7440-43-9	1.275	0.37	0.12
Chromium (ug/g)	7440-47-3	8.45	0.74	0.25
Copper (ug/g)	7440-50-8	178	0.15	0.05
Iron (ug/g)	7439-89-60	4780	1.5	0.5
Mercury (ug/g)	7439-97-6	0.335	0.02	0.004
Manganese (ug/g)	7439-96-5	350	0.15	0.05
Nickel (ug/g)	7440-02-0	7.33	0.74	0.25
Lead (ug/g)	7439-92-1	19.4	1.5	0.5
Silver (ug/g)	7440-22-4	3.71	0.74	0.25
Sulfur (ug/g)	7704-34-9	3960	7.4	2.5
Zinc (ug/g)	7440-66-6	337	0.15	0.05

Metals values reported on a "dry weight basis".



ANALYSIS REPORT

City Of Bellingham
200 McKenzie Ave
Bellingham, WA 98225
Attention: Peg Wendling

Date Received: 03/17/2016
Date Reported: 04/11/2016

AM TEST Identification Number 16A004123
Client Identification Incinerator Cake
Sampling Date 03/15/2016

PARAMETER	CAS #	RESULT	MDL	PQL
-----------	-------	--------	-----	-----

Conventionals

Total Solids (%)	23.2	0.1
------------------	------	-----

Total Metals

Arsenic (ug/g)	7740-38-2	2.5	0.75	1.8
Beryllium (ug/g)	7440-41-7	<0.091	0.035	0.091
Cadmium (ug/g)	7440-43-9	1.55	0.035	0.091
Chromium (ug/g)	7440-47-3	10.	0.33	0.91
Copper (ug/g)	7440-50-8	192	0.07	0.91
Iron (ug/g)	7439-89-60	6120	0.7	1.8
Mercury (ug/g)	7439-97-6	0.091	0.005	0.02
Manganese (ug/g)	7439-96-5	311	0.07	0.18
Nickel (ug/g)	7440-02-0	3.6	0.13	0.36
Lead (ug/g)	7439-92-1	28.	0.70	1.8
Silver (ug/g)	7440-22-4	2.9	0.33	0.91
Sulfur	7704-34-9	3630	3.3	9.1
Zinc (ug/g)	7440-66-6	353	0.07	0.36

Metals values reported on a "dry weight basis".

ANALYSIS REPORT

City Of Bellingham
200 McKenzie Ave
Bellingham, WA 98225
Attention: Peg Wendling

Date Received: 05/13/2016
Date Reported: 06/15/2016

AM TEST Identification Number 16A008461
Client Identification Incinerator Cake
Sampling Date 05/11/2016

PARAMETER	CAS #	RESULT	MDL	PQL
-----------	-------	--------	-----	-----

Conventionals

Total Solids (%)	26.7	0.1
------------------	------	-----

Total Metals

Arsenic (ug/g)	7740-38-2	2.3	0.75	1.3
Beryllium (ug/g)	7440-41-7	<0.066	0.035	0.066
Cadmium (ug/g)	7440-43-9	0.936	0.035	0.066
Chromium (ug/g)	7440-47-3	9.85	0.33	0.66
Copper (ug/g)	7440-50-8	168	0.07	0.66
Iron (ug/g)	7439-89-60	4120	0.7	1.3
Mercury (ug/g)	7439-97-6	0.262	0.005	0.02
Manganese (ug/g)	7439-96-5	246	0.07	0.18
Nickel (ug/g)	7440-02-0	4.76	0.13	0.36
Lead (ug/g)	7439-92-1	13	0.70	1.3
Silver (ug/g)	7440-22-4	0.94	0.33	0.66
Sulfur	7704-34-9	2970	3.3	6.1
Zinc (ug/g)	7440-66-6	322	0.07	0.36

Metals values reported on a "dry weight basis".



ANALYSIS REPORT

City Of Bellingham
200 McKenzie Ave
Bellingham, WA 98225
Attention: Peg Wendling

Date Received: 07/21/2016
Date Reported: 08/11/2016

AM TEST Identification Number 16A018901
Client Identification Incinerator Cake
Sampling Date 07/19/2016

PARAMETER	CAS #	RESULT	MDL	PQL
-----------	-------	--------	-----	-----

Conventionals

Total Solids (%)	25.4	0.1
------------------	------	-----

Total Metals

Arsenic (ug/g)	7740-38-2	2.99	0.75	0.96
Beryllium (ug/g)	7440-41-7	<0.096	0.035	0.096
Cadmium (ug/g)	7440-43-9	1.06	0.035	0.096
Chromium (ug/g)	7440-47-3	11.2	0.33	0.96
Copper (ug/g)	7440-50-8	205	0.07	0.96
Iron (ug/g)	7439-89-60	4290	0.7	1.2
Mercury (ug/g)	7439-97-6	0.258	0.005	0.02
Manganese (ug/g)	7439-96-5	229	0.07	0.19
Nickel (ug/g)	7440-02-0	7.95	0.13	0.39
Lead (ug/g)	7439-92-1	11	0.70	1.9
Silver (ug/g)	7440-22-4	<0.96	0.33	0.96
Sulfur	7704-34-9	3850	3.3	9.6
Zinc (ug/g)	7440-66-6	320	0.07	0.39

Metals values reported on a "dry weight basis".



ANALYSIS REPORT

City Of Bellingham
200 McKenzie Ave
Bellingham, WA 98225
Attention: Peg Wendling

Date Received: 09/21/2016
Date Reported: 10/31/2016

AM TEST Identification Number 16A025322
Client Identification Incinerator Cake
Sampling Date 09/19/2016

PARAMETER	CAS #	RESULT	MDL	PQL
-----------	-------	--------	-----	-----

Conventionals

Total Solids (%)	24.4	0.1
------------------	------	-----

Total Metals

Arsenic (ug/g)	7740-38-2	2.38	0.75	1.0
Beryllium (ug/g)	7440-41-7	<0.10	0.035	0.10
Cadmium (ug/g)	7440-43-9	1.31	0.035	0.10
Chromium (ug/g)	7440-47-3	9.8	0.33	1.0
Copper (ug/g)	7440-50-8	150	0.07	1.0
Iron (ug/g)	7439-89-60	4180	0.7	1.2
Mercury (ug/g)	7439-97-6	0.336	0.005	0.02
Manganese (ug/g)	7439-96-5	181	0.07	0.19
Nickel (ug/g)	7440-02-0	7.91	0.13	0.39
Lead (ug/g)	7439-92-1	16	0.70	1.9
Silver (ug/g)	7440-22-4	<1.0	0.33	1.0
Sulfur	7704-34-9	4430	3.3	10.0
Zinc (ug/g)	7440-66-6	370	0.07	0.39

Metals values reported on a "dry weight basis".



ANALYSIS REPORT

City Of Bellingham
200 McKenzie Ave
Bellingham, WA 98225
Attention: Peg Wendling

Date Received: 11/23/2016
Date Reported: 12/16/2016

AM TEST Identification Number
Client Identification
Sampling Date

16A029371
Incinerator Cake
11/21/2016

PARAMETER	CAS #	RESULT	MDL	PQL
-----------	-------	--------	-----	-----

Conventional

Total Solids (%)	24.4	0.1
------------------	------	-----

Total Metals

Arsenic (ug/g)	7740-38-2	2.13	0.75	1.0
Beryllium (ug/g)	7440-41-7	<0.10	0.035	0.10
Cadmium (ug/g)	7440-43-9	1.07	0.035	0.10
Chromium (ug/g)	7440-47-3	11.2	0.33	1.0
Copper (ug/g)	7440-50-8	140	0.07	1.0
Iron (ug/g)	7439-89-60	6190	0.7	1.2
Mercury (ug/g)	7439-97-6	0.335	0.005	0.02
Manganese (ug/g)	7439-96-5	443	0.07	0.19
Nickel (ug/g)	7440-02-0	7.34	0.13	0.39
Lead (ug/g)	7439-92-1	13.4	0.70	1.9
Silver (ug/g)	7440-22-4	<1.0	0.33	1.0
Sulfur	7704-34-9	4430	3.3	10.0
Zinc (ug/g)	7440-66-6	300	0.07	0.39

Metals values reported on a "dry weight basis".